Configuring Cisco Nexus 7000 Switches v2.0 (DCNX7K)

Duration: 5 days

Prerequisites

The knowledge and skills that a learner must have before attending this course are as follows:

•Good understanding of networking protocols, routing and switching
•Recommended CCNA Certification
•Implementing Cisco IP Routing (ROUTE)
•Implementing Cisco IP Switched Networks (SWITCH)

During the course of instruction, the learner will be exposed to the configuration of advanced technologies, such as BGP, MPLS and FCoE. The learner will not be required to have experience with these technologies in order successfully complete the class. The course covers initial configuration of BGP, MPLS, and FCoE on Cisco Nexus 7000. For a deeper understanding in BGP, MPLS and FCoE, students are encouraged to explore additional training in those technologies.

Certifications

This course is part of the following Certifications: Cisco CCIE Data Center (CISCO CCIE DATA CENTER)

Course Outline

Module 1: Cisco Nexus 7000 Switch Product Overview
Identify the chassis and components of the Cisco Nexus 7000 Switch. The architecture of the hardware and Cisco NX-OS software will be explained, along with the purpose and configuration of the Connectivity Management Processor (CMP).

>   **Lesson 1: Cisco Nexus 7000 Product Overview**
>   Cisco Nexus Product family
>   Key High Availability Features
>   Key Unified Fabric Features
>   Key Scalability Features
>   The Supervisor Engine and I/O Module Features
>   Fabric Module Capacity and Redundancy
>   Virtual Output Queuing (VOQ)
>   Packet Flow and Arbitration
>   Power Supplies and Fan Cooling
>   Deployment Models
>   **Lesson 2: Describing Cisco NX-OS Software**
>   Cisco NX-OS Software Architecture
>   Cisco NX-OS Software Features
>   Licensing Features

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Lesson 3: Understanding High Availability and Redundancy
Process-Level High Availability
Network-Level High Availability
System-Level High Availability
In-Service Software Upgrade (ISSU)
Lesson 4: Using the Connectivity Management Processor
The Connectivity Management Processor (CMP)
Configuring the Connectivity Management Processor (CMP)
Verification
Upgrading the Connectivity Management Processor
Using the Connectivity Management Processor (CMP)

Module 2: Cisco Nexus 7000 Switch Management
Identify which management tools are available on the Cisco Nexus 7000 switch, and how to configure the relevant management tool to support the given design.

Lesson 1: Configuring User Management
User Management Features
User Accounts and Roles
Authentication, Authorization, and Accounting (AAA)
Secure Shell (SSH)
Lesson 2: Understanding System Management
System Management Features
Cisco Fabric Services
Smart Call Home
Scheduler
System Message Logging
Simple Network Management Protocol (SNMP)
Data Center Network Manager (DCNM)
NTP and CDP

Module 3: Cisco Nexus 7000 Switch Feature Configuration
Select the Cisco Nexus 7000 switch functions and features that deliver the expected technical and business benefits within the configuration constraints.

Lesson 1: Using Virtual Device Contexts on the Cisco Nexus 7000 Switch
Virtual Device Contexts (VDCs)
Resource Templates
Configuring Virtual Device Contexts (VDCs)
Management Settings
Lesson 2: Configuring Layer 2 Switching Features
Basic Interface Parameters
Layer 2 Interfaces
VLANs
Private VLANs

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Module 4: Cisco Nexus 7000 Advanced Feature Configuration
Configure and position features such as Security and Quality of Service.

Lesson 1: Configuring Security Features
Security Features
Access Control Lists
Port Security
DHCP Snooping
Dynamic ARP Inspection
IP Source Guard
Unicast RPF
Traffic Storm Control
Control Plane Protection
Cisco TrustSec
Lesson 2: Configuring Quality of Service (QoS)
Quality of Service (QoS)
Quality of Service (QoS) on the Cisco Nexus 7000 Switch
Modular QoS Command Line Interface (MQC)
Classification
Marking
Mutation Mapping
Policing
Queuing and Scheduling
Monitoring

Module 5: Troubleshooting Explain how to approach troubleshooting key features on the Cisco Nexus 7000 switch.

Lesson 1: Understanding the Troubleshooting Process
The Troubleshooting Process
System Messages
Viewing the Logs
Troubleshooting Modules
Lesson 2: Using Troubleshooting Features
Troubleshooting Features
Embedded WireShark Analyzer
SPAN
NetFlow
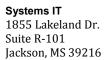Online Diagnostics
Onboard Failure Logging
Remote MONitoring (RMON)
Embedded Event Manager (EEM)
Lesson 3: Troubleshooting Installs, Upgrades, and Reboots
Troubleshooting Software Upgrades and Downgrades
Troubleshooting Software System Reboots

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Lesson 4: Troubleshooting Virtual Port Channels
Troubleshooting Checklist
Configuration Element Mismatch
Cannot Enable the Feature
vPC in Blocked State
VLANs Suspended
Traffic Disrupted
Lesson 5: Troubleshooting Memory and Packet Flow Issues
High-Level Assessment
Detailed Assessment
Platform Memory Monitoring
Packet Flow Issues

COURSE LABS

Lab 1-1: Cisco Nexus 7000 Platform Discovery
Lab 2-1: Configuring User Management
Lab 2-2: Configuring System Management
Lab 3-1: Configuring Layer 2 Switching
Lab 3-2: Configuring Virtual Port Channels (vPCs)
Lab 3-3: Configuring Cisco FabricPath
Lab 3-4: Configuring Layer 3 Switching
Lab 3-5: Configuring FHRP
Lab 3-6: Configure MPLS on the Cisco Nexus 7000 switch
Lab 3-7: Configure Overlay Transport Virtualization (OTV)
Lab 3-8: Configure LISP on the Cisco Nexus 7000 switch
Lab 4-1: Configuring Security Features
Lab 4-2: Configuring Quality of Service (QoS)
Lab 5-1: Configuring Troubleshooting Features
Lab 5-2: Troubleshooting Virtual Port Channels (vPCs) and Cisco Fabricpath

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